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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003903130 for a patent by AUTOMOTIVE OCCUPANT LOAD PROTECTION SYSTEMS PTY LTD as filed on 20 June 2003.

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ORIGINAL

PROVISIONAL SPECIFICATION FOR AN INVENTION ENTITLED:

Invention Title: Vehicle driver security screen
Name of Applicant: Automotive Occupant Load Protection Systems Pty Ltd
Address for Service: LESICAR PERRIN, 49 Wright Street, Adelaide, SA 5000

The invention is described in the following statement:

Vehicle Driver Security Screen

The present invention relates to a vehicle driver security screen and in particular to a screen that seeks to minimise access to the driver's area of a vehicle such as a taxi cab or bus from side or rear attempts by passengers to access the driver area in an assault or robbery situation.

BACKGROUND OF THE INVENTION

Unfortunately, it is often the case that drivers of public transport vehicles such as taxi cabs and buses are prone to assault by side or rear passengers of the vehicle in an attempt to steal from the driver or obtain a free fare, amongst other reasons.

Various remedies to this known problem have been proposed. The use of security cameras mounted within vehicles is now commonplace and these provide some assurance to the driver that activities within the vehicle are being monitored. However, security cameras of this type can be quite sophisticated and therefore their cost quite substantial. Furthermore, the use of security cameras although known to be relatively effective in obtaining the identity of perpetrators, does not provide instant protection for the driver in an assault situation.

Protection barriers have also been proposed. However, these are often quite cumbersome units and are not easily retrofitted into existing vehicles. In addition, existing barriers often cause discomfort to the driver of the vehicle and do not allow for sufficient contact and communication between the driver and passengers. Various known barriers also do not provide specific protection to the vital areas of the driver such as the head and torso regions.

It is therefore an object of the present invention to overcome at least some of the aforementioned problems or to provide the public with a useful alternative.

SUMMARY OF THE INVENTION

Therefore in one form of the invention there is proposed a security screen for the interior of a vehicle said security screen including:

at least one side barrier adapted to prevent side access to a driver of the vehicle; and

at least one rear barrier adapted to prevent rear access to the driver of the vehicle.

Preferably, said side barrier is located on a front-passenger side of the driver and extends substantially forward relative to the driver.

- 5 Preferably, said side barrier includes a first panel positioned lower than a second panel that slightly overlaps said first panel.

Preferably, said first and second panels are connected at the overlap.

Preferably, said security screen includes a second side barrier located on a driver-door side of the driver and extends substantially forward relative to the driver.

- 10 Preferably, said second side barrier includes a third panel positioned lower than a fourth panel that slightly overlaps said third panel.

Preferably, said third and fourth panels are connected at the overlap.

Preferably, said first side barrier extends a greater distance than said second side barrier.

- 15 Preferably, said rear barrier includes a fifth panel that is angled slightly forward relative to a lower sixth panel.

Preferably, said fifth panel connects the second and fourth panels.

Preferably, said sixth panel connects the first and third panels.

Preferably, said fifth panel extends to just below a ceiling of the vehicle.

- 20 Preferably, said sixth panel extends to just above a floor of the vehicle.

Preferably, said security screen is attached to the rear of a driver seat whereby said sixth panel makes contact with a rear surface of the driver seat.

- 25 Preferably, said security screen includes a connection means located on said fifth panel said connection means consisting of a C-section member adapted to engage a vehicle head-rest.

Preferably, said C-section member includes a tether adapted to secure said C-section member to said headrest.

Preferably, said security screen includes a second connection means located on either side of said sixth panel adapted to engage a first frame of said seat said first frame connecting the base and rear portions of said seat.

5 Preferably, said security screen includes a third connection means located on either side of the base said sixth panel adapted to engage a second frame of said seat said second frame located below the seat.

Preferably, said tether, second connection means, and third connection means include a hook and tape connection.

10 Preferably, said tether, second connection means, and third connection means include a snap-fit connection.

Preferably, said security screen is made of a rigid, slightly flexible material such as Polycarbonate plastic.

Preferably, said security screen is transparent.

15 In a further form of the invention there is proposed a vehicle driver security screen adapted to be attached to a driver seat having a base, backrest and headrest and including:

a rear panel having at least two sides and adapted to extend behind the backrest and beyond the height of the backrest;

two side panels extending from said panel two sides;

20 said side panel in close proximity to the centre of the vehicle being or a larger dimension than said other side panel;

said screen including an attachment means adapted to secure said screen to said seat by engaging said headrest.

BRIEF DESCRIPTION OF THE DRAWINGS

25 The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate several implementations of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings,

30 Figure 1a is a schematic perspective view illustrating the front of a vehicle driver security screen in accordance with the present invention;

- Figure 1b is a schematic perspective view illustrating the rear of the vehicle driver security screen of Figure 1a;
- Figure 2a is a front plan view of the vehicle driver security screen of Figure 1a-b;
- Figure 2b is a side plan view of the vehicle driver security screen of Figure 1a-b;
- 5 Figure 2c is a top plan view of the vehicle driver security screen of Figure 1a-b;
- Figure 3 is a schematic perspective view of the rear of the vehicle driver security screen of Figure 1a-b as attached to a driver seat;
- Figure 4 is a schematic perspective view of the side of the vehicle driver security screen as attached to a driver seat as shown in Figure 3;
- 10 Figure 5 is a schematic perspective view of the vehicle driver security screen as shown in Figure 4 and including a driver;
- Figure 6 is an enlarged perspective view of the upper connection means between the vehicle driver security screen and the driver seat;
- 15 Figure 7a is a schematic perspective view of the front of the vehicle driver security screen including alternate connection means; and
- Figure 7b is a schematic perspective view of the rear of the vehicle driver security screen including alternate connection means.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

20 The following detailed description of the invention refers to the accompanying drawings. Although the description includes exemplary embodiments, other embodiments are possible, and changes may be made to the embodiments described without departing from the spirit and scope of the invention. Wherever possible, the same reference numbers will be used throughout the drawings and the following description to refer to the same and like parts.

25 The present invention discloses a vehicle driver security screen 10 that seeks to minimise side and rear access to a driver 12 of a vehicle (not shown). An example in which the screen 10 may prove necessary is where a passenger or passengers (not shown) wish to access the driver area in order to assault the driver 12. The screen 10 includes six major panels 14, 16, 18, 20, 22, and 24. Panels 14 and 16

protect the driver 12 from side access while panels 18, 20, and 22 prevent rear access to the driver 12. The screen 10 is designed like so because the most serious and often fatal attacks to drivers of public transport vehicles occur to the head 26 and torso 28 regions. The screen 10 can further be retrofitted onto existing vehicle seats

5 30 and attached via simple connection means 32 to allow the screen 10 to be movable with the seat 30.

Figures 1-2 illustrate the vehicle driver security screen 10 of the present invention whilst Figures 3-5 illustrate the screen 10 as attached to the driver seat 30 of a vehicle (not shown). The security screen 10 is a single rigid structure and as

10 already mentioned consists of six panels 14, 16, 18, 20, 22 and 24. It is to be understood that panels 16 and 20 are extensions of panel 22 that have been bent substantially laterally relative to panel 22 whilst panels 14 and 18 are extensions of panel 24 that have been bent at an angle slightly less than that of panels 16 and 20. Panel 22 bends forward relative to the driver 12 and it is this bend that causes panels

15 16 and 20 to overlap with panels 14 and 18 respectively. It is to be understood that there exists spaces 34 between panels 14 and 16, and 36 between panels 18 and 20 to allow for this overlap.

Panel 22 is defined by adjacent edges 38, 40 and 42 and a circular edge 44 whereby panel 16 extends from 38 and panel 20 extends from 42. The overlap of

20 panels 14 and 16, and 18 and 20 are connected by a stud or screw connection 46, or any other suitable connection means. The edges 48 as defined by overlapping panels 14 and 16, and 50 as defined by overlapping panels 18 and 20 are both flush. Panels 18 and 20 together form a curved perimeter that extends outwards from the top of edge 42 and downward toward edge 52. Alternatively, panels 14 and 16

25 together form a shape with relatively straight edges. As is illustrated clearly in Figure 5, the driver 12 of the vehicle is still able to maintain sufficient contact with both side and rear passengers in that panel 14 does not block movement of the driver's hands. Therefore, exchange of money and various other activities may still take place. For example, if a taxi-driver 12 was required to give change to a customer seated at their

30 side or at their rear, there is sufficient clearance beneath panel 14 for this to be achieved.

It should now be apparent that when the security screen 10 is attached to a vehicle driver seat 12, that panels 14 and 16 will protect from a side passenger (not shown), panel 22 will protect from any rear passengers and panels 18 and 20 will

35 protect from rear passengers who may wish to assault the driver from the driver door

side of the vehicle. Furthermore, the extension of each panel allows for particular protection of the vital regions of the driver, namely the head 26 and torso 28 regions.

The vehicle driver security screen 10 as illustrated is intended for vehicles with right hand side steering, however, it is to be understood that the present invention may well be manufactured in an opposite configuration to allow for application in vehicles with left hand side steering.

Panel 24 lies substantially flat across the rear surface 54 of the seat 12 and is adapted to extend to just above the vehicle floor (not shown) while panel 22 is adapted to almost abut the vehicle ceiling liner (not shown). The panel 24 also contains four connection means 56, 58, 60, and 62, in this example being well-known hook and tape connections. The connection means 56 and 58 that extend through apertures 64 and 66 respectively, are adapted to be fastened to the seat frame 68 that connects the base 70 of the seat 12 to the body 72 of the seat 12. The connection means 60 and 62 that extend through apertures 74 and 76 respectively, are adapted to be fastened to a base frame 78 of the seat 12.

There exists another connection means 80 on panel 22 that is clearly illustrated in Figure 6. The connection means 80 is adapted to be attached to the lower portion 82 of a vehicle head-rest 84. The connection means 80 comprises a C-section that is connected to panel 22 through its elongate section 82. Once again, this connection may be achieved using screws 86 and 88 as illustrated, however, this is by way of example only and the present invention should not be limited to this. C-section 80 is adapted to hug portion 82 while straps 90 and 92 allow for this connection to be strengthened. The illustrated straps include a well known snap-fit connection 94, however, other means to connect the straps may well be employed. Figure 7 illustrates the vehicle driver security screen 10 including its connection means 96 and 98 also incorporating a snap-fit connection.

The connection of the security screen 10 with the vehicle seat 30, as specified above, allows for the driver 12 of the vehicle to adjust his or her seat 30 and coincidentally move the security screen 10 with the seat 30. This provides obvious advantages in that drivers of public transport vehicles often compromise safety for comfort, whereas the present invention offers the availability of both. Furthermore, the narrowness of panel 20 and the clearance below panel 14 provides space for a seatbelt to extend there through, which is a requirement by law in most countries. The seatbelt would therefore extend over panel 20, across the driver's torso and

below panel 14 to the seatbelt buckle (not shown). This means that no matter which position the seat 30 is adjusted to, the driver is still able to strap on the seatbelt.

The screen 10 in its manoeuvrability can also be easily retrofitted into existing public transport vehicles with minimal requirements thus offering the added advantage of low cost.

It should be understood that the method of manufacture of the security screen 10 should not be limited to the abovementioned process of bending the panels as each panel may well be welded together to produce the same or similar result. Similarly, the overlapping sides do not necessarily have to be employed as single side members will suffice. Typically, the security screen 10 is made of a strong and transparent Polycarbonate plastic, however, once again any material capable of offering adequate protection to the driver may be used. As an indication:

- the angle of panels 14 and 16, and panels 18 and 20 relative to panel 24 should be bent to approximately 109°; and
- the larger side of the screen 10, namely panels 14 and 16 should extend to approximately $\frac{3}{4}$ of the length between the dashboard (not shown) and panel 24.

It should therefore now be apparent to those skilled in the art that the disclosed invention offers protection for a driver of a public transport vehicle from assault. The screen includes side and rear panels that prevent passengers seated beside or behind the driver from accessing the vital regions of the driver such as the head and torso regions, whilst maintaining sufficient contact and communication between driver and passenger. The screen offers various other advantages in that it is able to be retrofitted into existing public transport vehicles and is movable with the driver seat thereby offering the driver both comfort and protection.

The skilled addressee should now appreciate the advantages of the preset invention whereby a driver security screen offering protection for the driver can be easily installed into the vehicles and attached to the drivers seat. This results in the panel moving with the seat ensuring that the screen always fits snugly around the driver.

It is to be understood that the embodiment is by way of example only and that other variations may very well be made to the preset invention without deviating from

its scope. Thus, there may very well only be a rear panel and one passenger side panel, the panels being of a straight configuration. Further the screen may only be attached to the headrest and not to any other locations on the seat.

5 Further advantages and improvements may very well be made to the present invention without deviating from its scope. Although the invention has been shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope and spirit of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all
10 equivalent devices and apparatus.

Dated this Friday, June 20, 2003

Automotive Occupant Load Protection Systems Pty Ltd
By their Patent Attorneys
15 LESICAR PERRIN

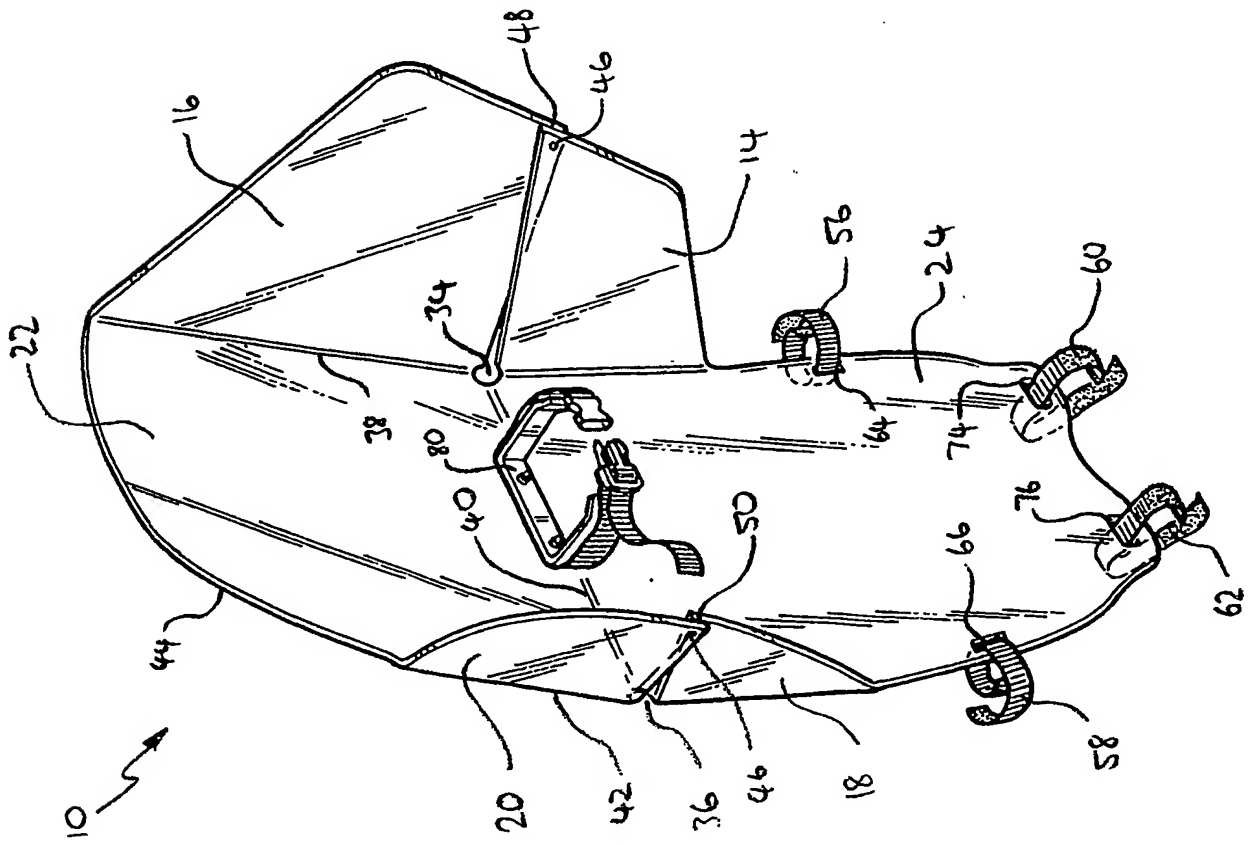


Fig 19

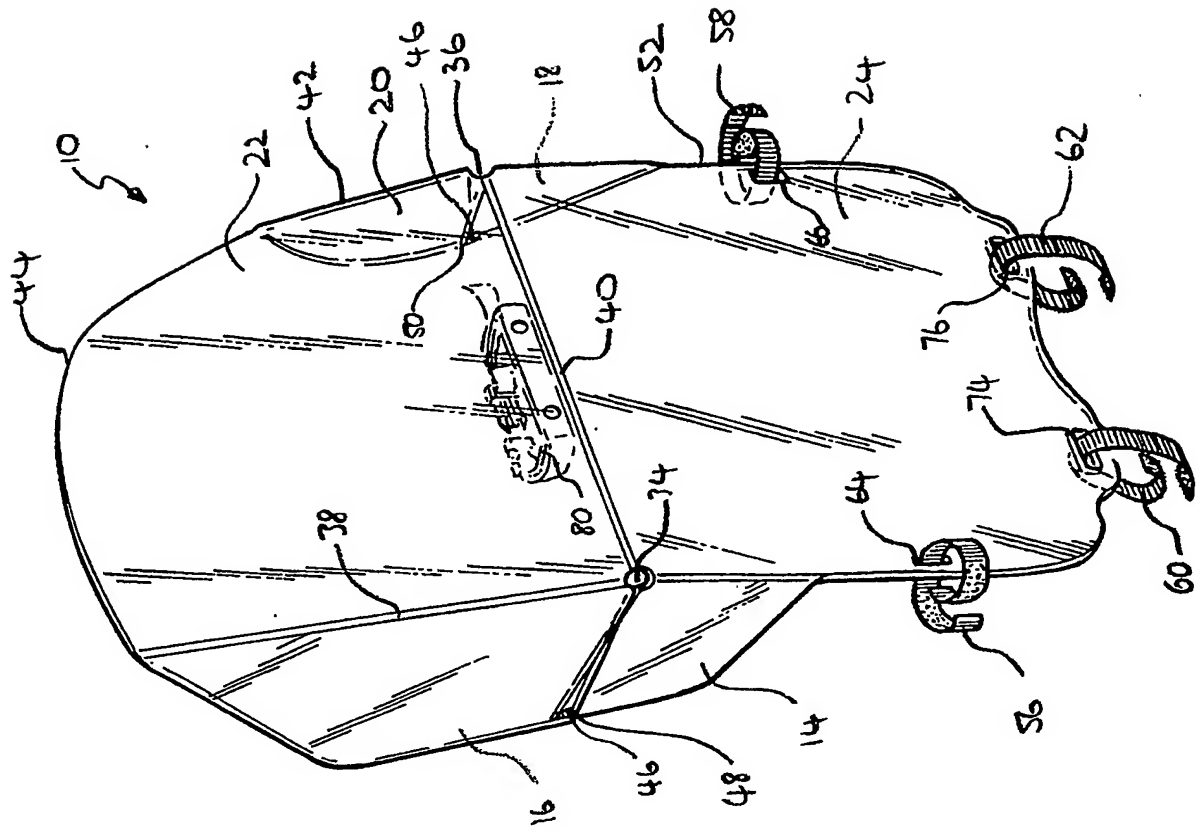
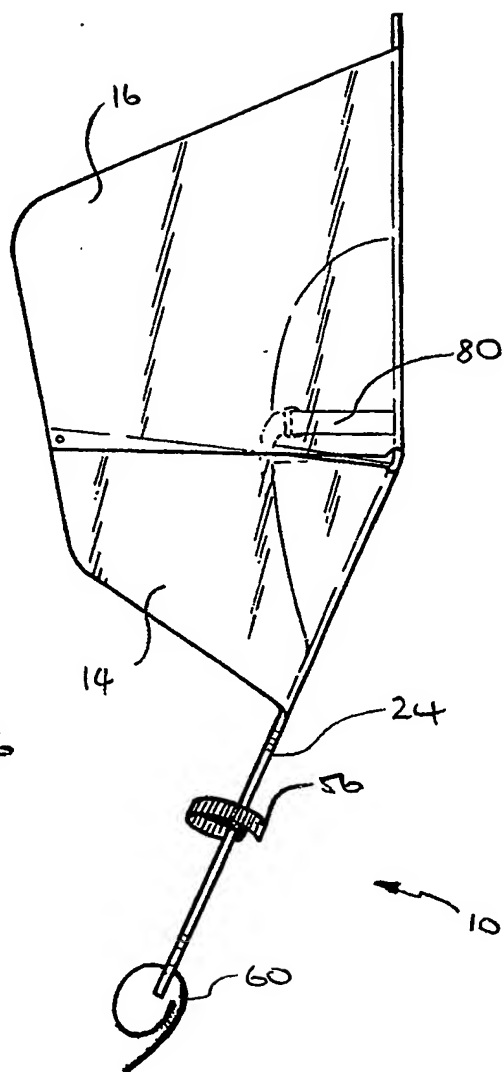
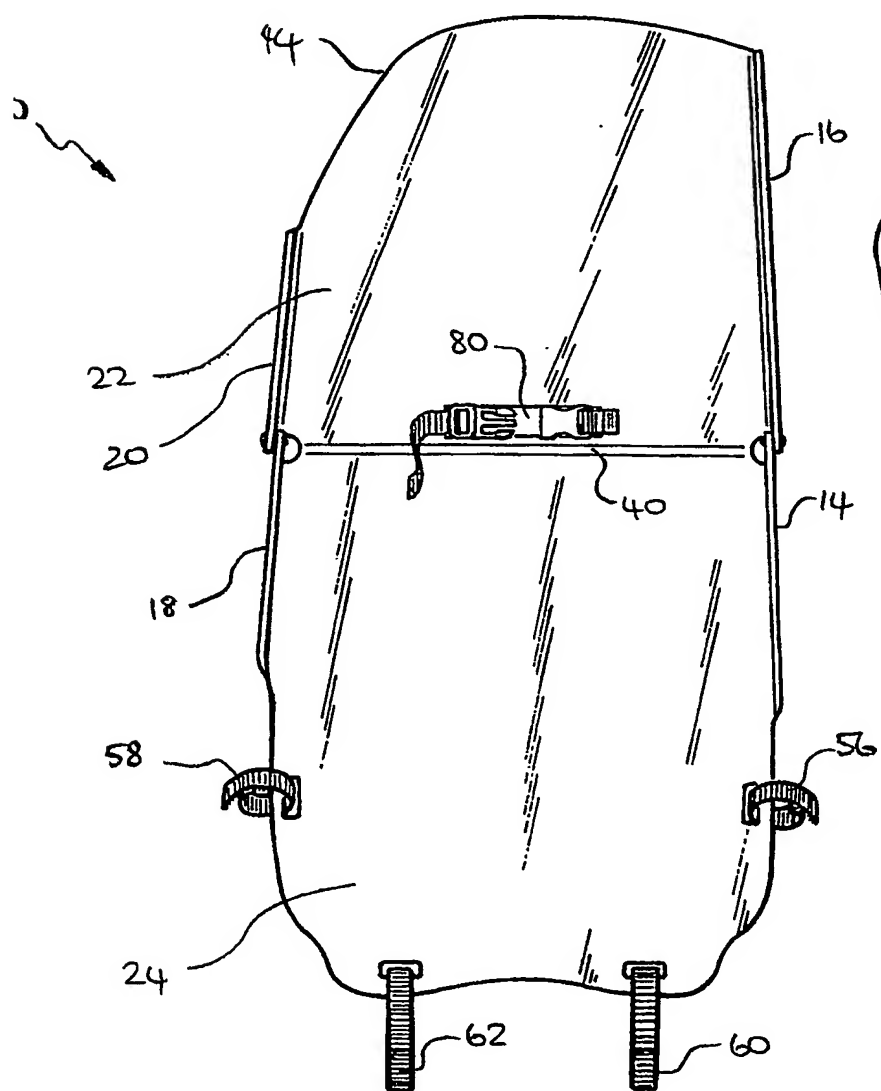
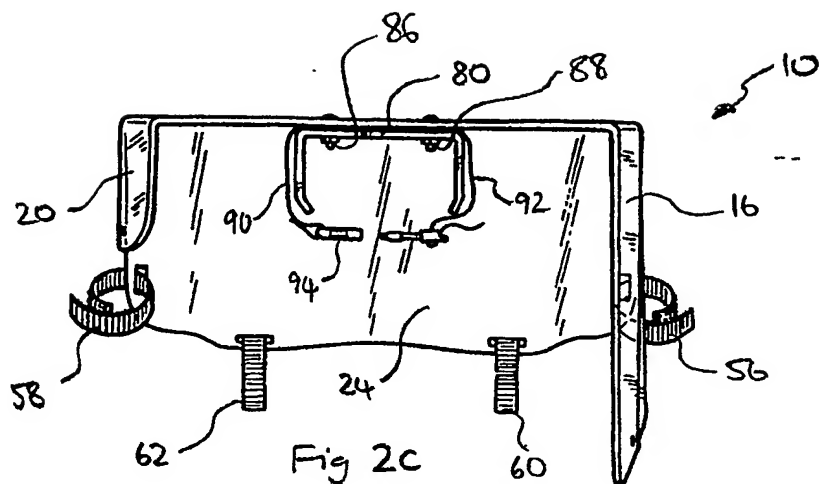


Fig 16



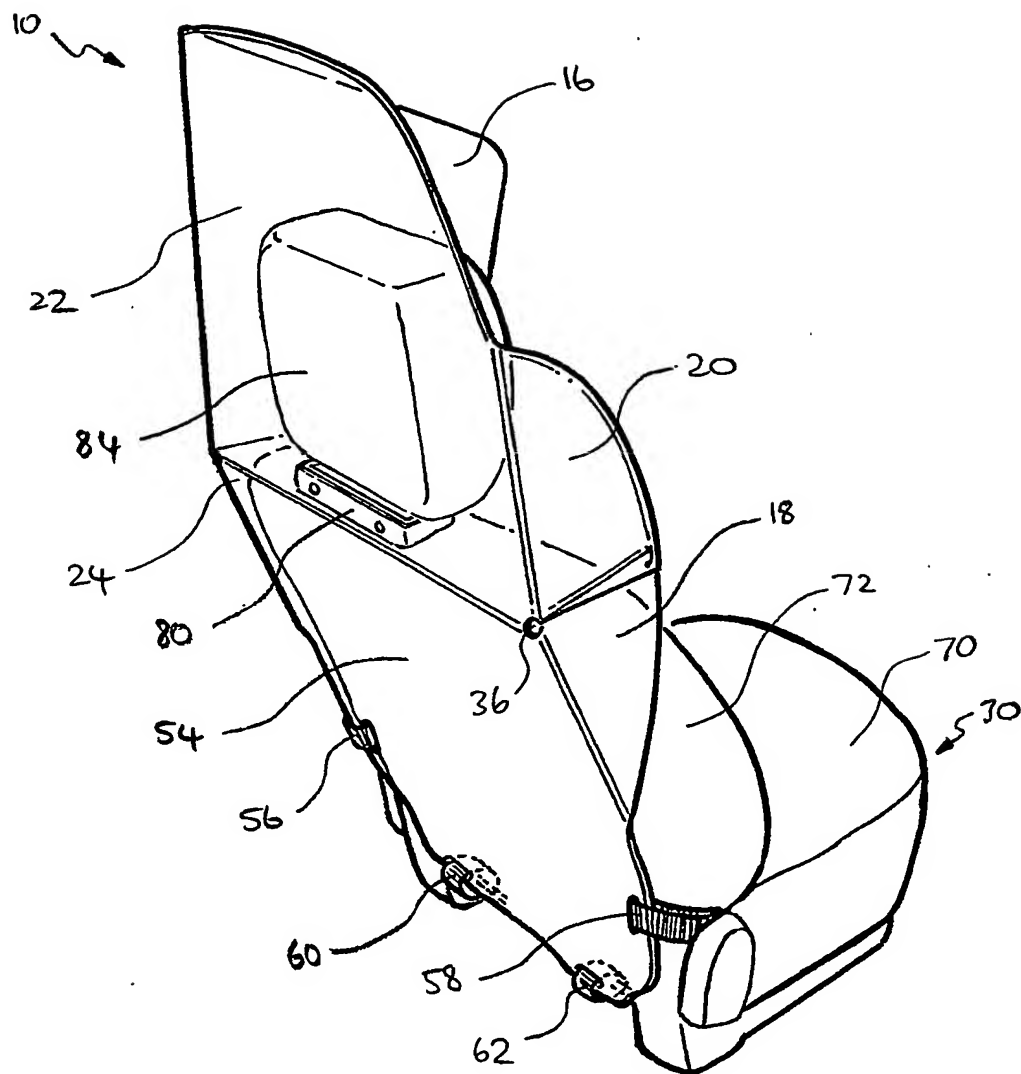


Fig 3.

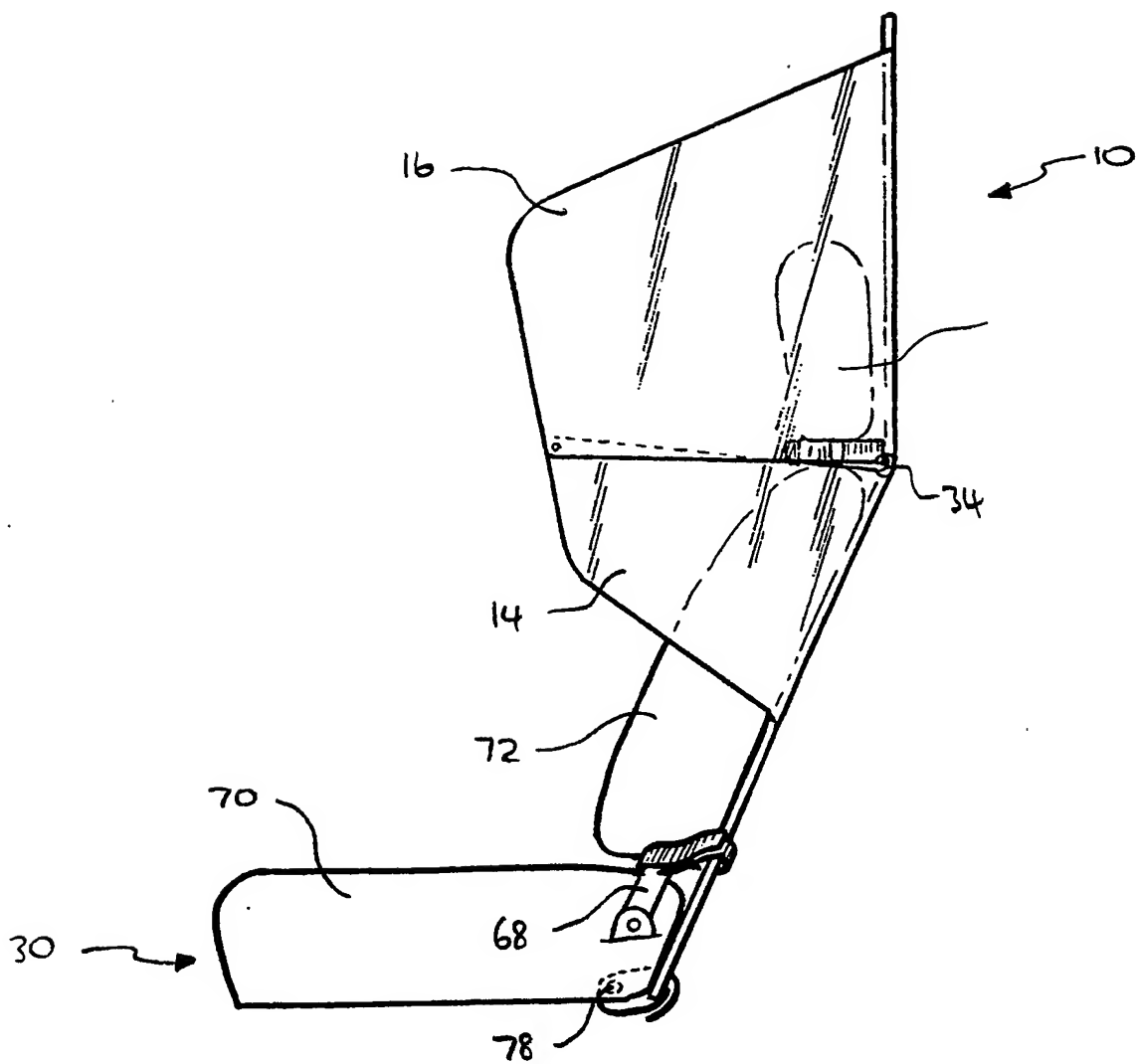


Fig 4

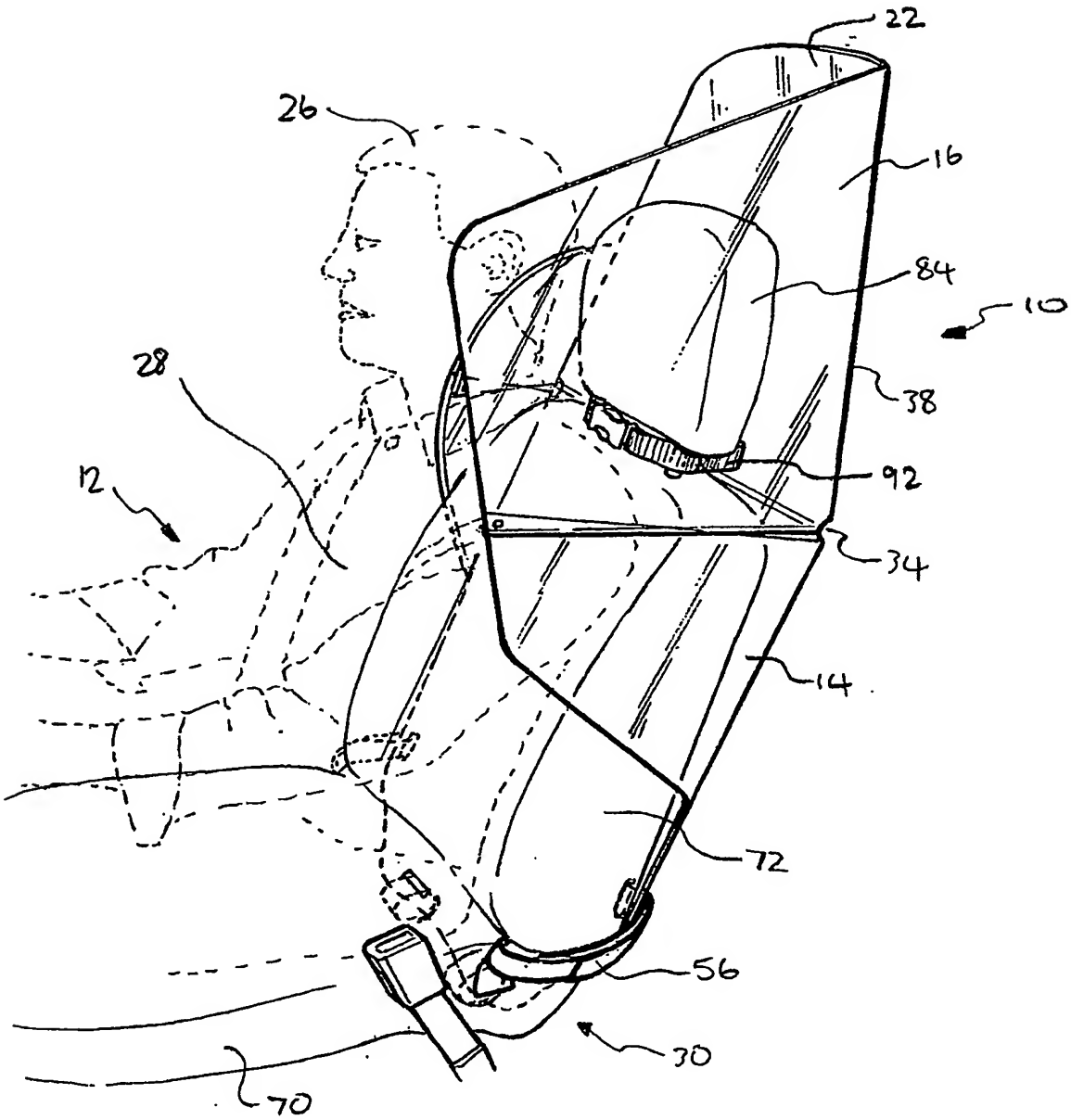


Fig 5

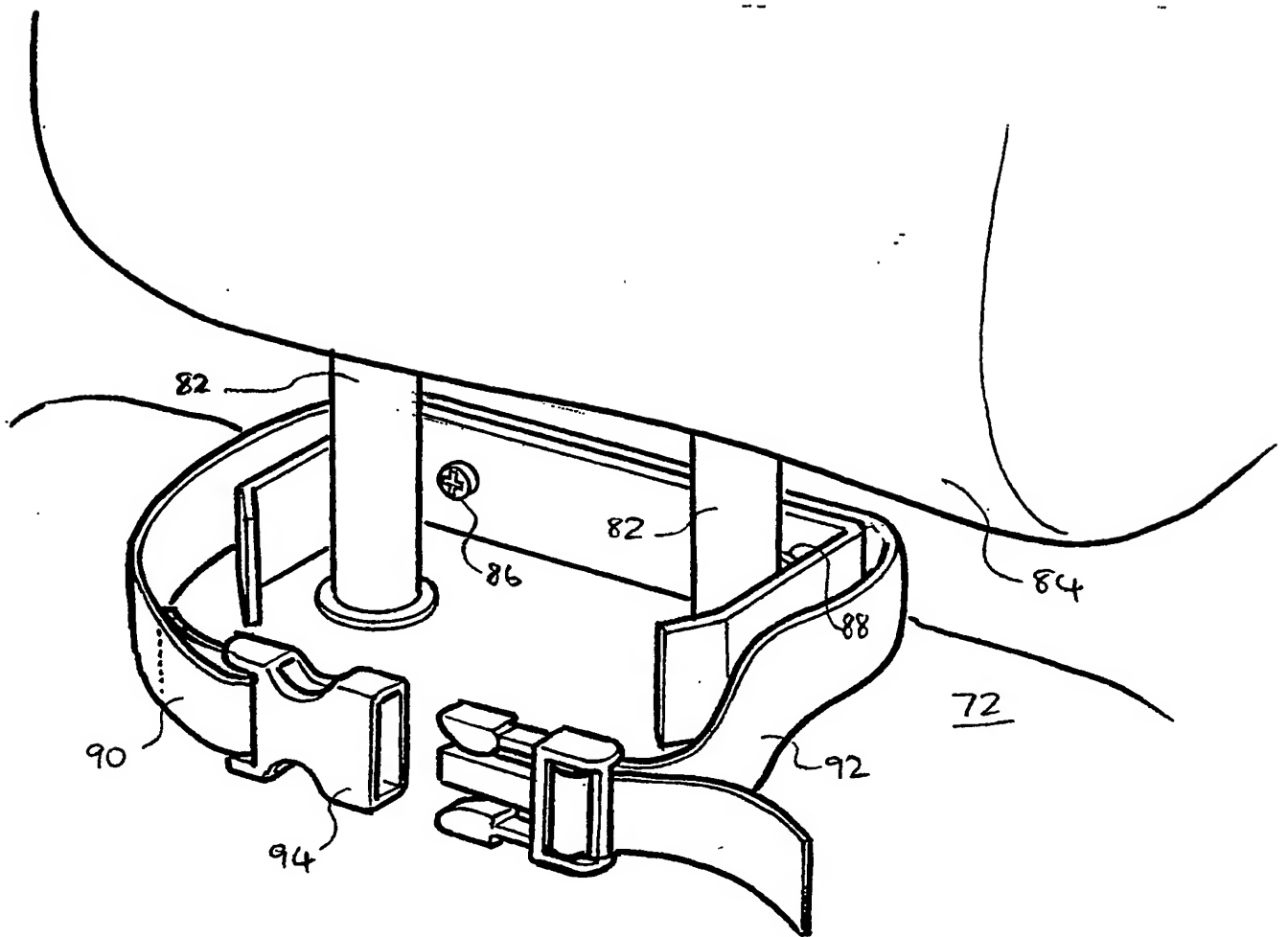
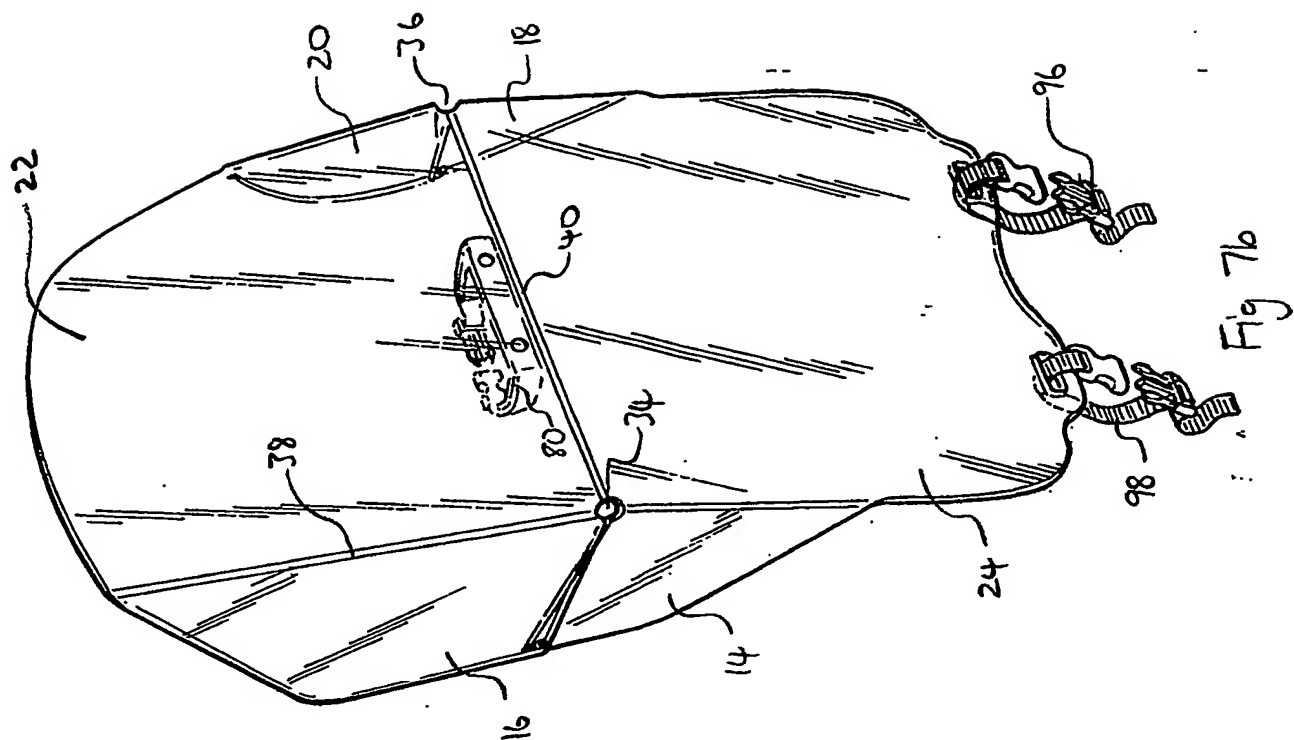
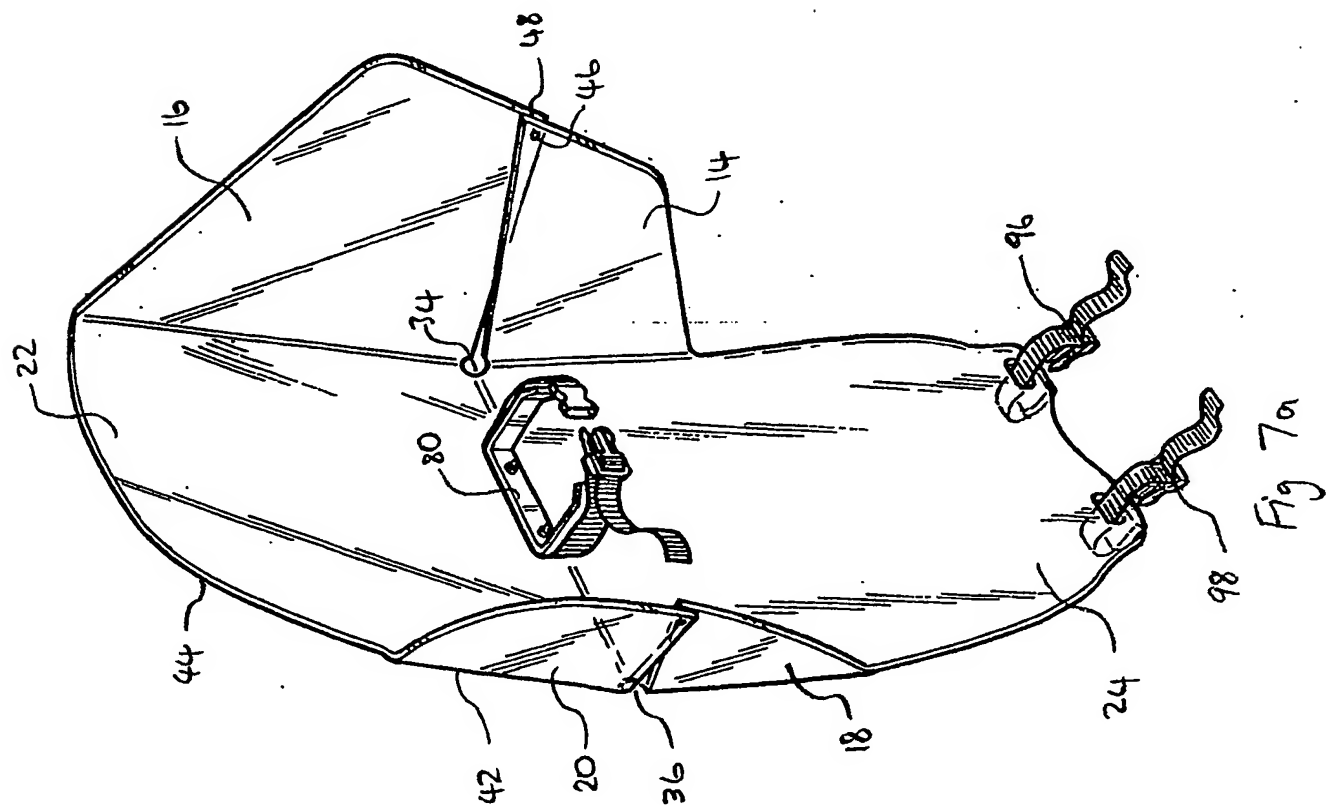


Fig 6



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